



SPIR-Ident Mobile Platform

Airborne and Carborne Mobile Spectrometry



Nuclear



Healthcare



Military and Civil
Defense



Laboratories
and Education



Industrial



GENERAL OVERVIEW

The SPIR-Ident Mobile Platform is an airborne and carborne system that combines advanced gamma detection and spectroscopy with optional neutron detection suited for vehicles, ships, helicopters and aircrafts.

The system has been designed for multiple applications :

- for searching and locating radioactive sources for security related applications
- for mapping of natural radiation background
- for qualitative and quantitative analysis of contamination in case of nuclear accident

Thanks to its robustness, customization and modularity, the SPIR-Ident Mobile Platform is meeting all the operational requirements, so that it can be easily deployed and ready for use in less than 5 minutes.

The SPIR-Ident Mobile Platform is composed of :

- **Detector boxes** with NaI(Tl) crystals of different sizes, GM detector for high gamma dose rate measurements, and optionally BZnS based neutron detectors with the associated electronics
- Computer equipped of **SPiR-Ident Mobile Suite**: SpirMOBILE, SpirPORTAL
- Optionally **connection/accessory box** for batteries, connection and communication
- **SpirVIEW MOBILE** : supervision software for a fleet of instruments/vehicles by merging all the radiological data into a single map
- **SpirTRAINING** module offer realistic and customized training scenarios without using any radioactive source

HOMELAND AND MAJOR EVENTS SECURITY

Search and identify radioactive sources to fight against illicit trafficking. Use the guidance functions and mapping capabilities to locate sources and make relevant decisions to secure the perimeter.

- Instant identification, not sensitive to background fluctuations
- Categorization based on the nature of the source
- Localization support : alarm and hotspot position, direction indication
- Point of interest positioning on the map, with pictures and comments
- Intuitive and customized interface



ENVIRONMENTAL AND POST-ACCIDENT SURVEILLANCE

Mapping of the nature and level of the background to draw an initial map of a specific area or check after contamination operations. Delimit contaminated area to intervene quickly and more efficiently in case of nuclear accident or release.

- Real-time calculation of the dose rate on the soil, of the MMGC, of K, U and Th concentrations, and of contamination for each artificial isotope (Cs-137, Co-60...)
- For airborne missions, use of elevation files (SRTM 90m) for automated calculation of the flying height
- Continuous mapping update, interpolation
- Trend curves, waterfall spectra...
- Instant data export (USB key, e-mail...)
- For first responders and experts



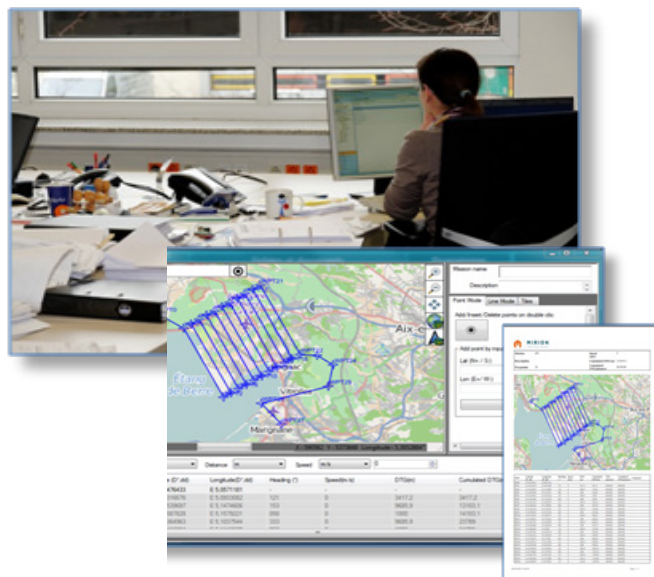
MISSION PREPARATION

Quickly and easily prepare your flight plan and road map:

- Save time while preparing your mission
- Flight plan optimization
- Automated bitmap or squaring
- Print out or transfer to the vehicle's GPS

Upload your maps for SpirMOBILE software use without any internet connection:

- background map
- elevation map (for flight's height calculation)



TRAINING

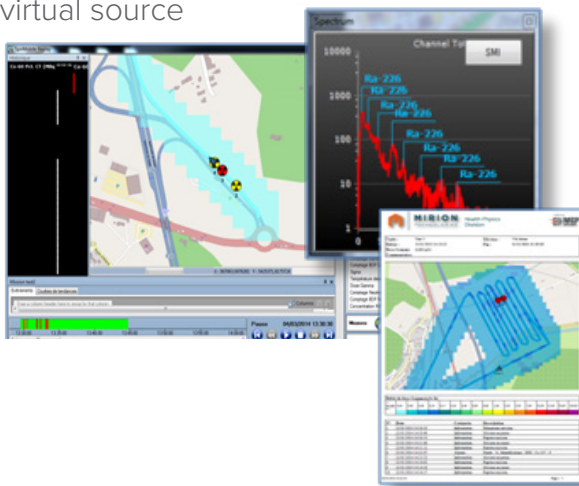
Train your operators in an intuitive way, without any risk since no source manipulation is needed.

For the instructor:

- Create specific scenarii by positioning virtual sources on the map
- Use your own spectra or pick from the database
- Supervise trainees during the mission with SpirVIEW software
- Debrief with SpirREPLAY software

For the trainee :

- Same mode of operation in regular or training modes
- No exposure to radiation
- Realistic : Take into account the positioning and direction of the vehicle compared to the virtual source



SUPERVISION OF MOBILE UNITS MOBILES

Remote supervision of all your mobile units for mapping a global radiological situation of an area. Real-time data transfer for an in-depth analysis of the detected threat :

- Real-time transmission of data, comments and pictures
- Data transfer to the supervisor and between the different units
- Mapping from different units
- Remote analysis
- Can also be used for units in training mode
- Crew radiological information, mission's dose and dose rate



POST-MISSION

Analyze your mission and the related radiological data. Merge maps from different missions and units into a single one :

- Replay mode, fast-forward, step-by-step...
- Measurement synthesis for a given area or a time period
- Share data and maps under Csv, N42.42, ERS, KML and PDF format
- Simplified data storage and restoring



SELECTION GUIDE

1/ DETECTOR'S SIZE

- **4I** : Mapping of NORM sources with calculation of K, U and Th concentration (high energy sensitivity)
- **2I** : Search and mapping of artificial sources

2/ DETECTORS' ARRANGEMENT

- **vehicle** : left and right localization : 1 or 2 detectors on each side
- **vehicle** : 360 degree localization : 4 detectors positioned at the front, rear, left and right within a roof box
- **aircraft** : depends on airlift capability (compromise between sensitivity & flying time)

3/ DETECTION CASE'S SIZE

- **Single** : transportable by one person, modular installation
- **Double gamma or single gamma + neutron versions** : with protection against vibrations and shocks for use in helicopters and all-terrain vehicles

4/ OPTIONS

- **Interface case** : Increased autonomy of the system, storage, additional sensors
- **Mounting structure** for vehicle
- **Roof box for All-Terrain Vehicles** : integration of up to 4 Gamma detectors and 1 Neutron, INMARSAT satellite
- **Qualified version against aeronautical standards** (DO-160, MIL-STD 810, MIL-STD 461)



PERFORMANCE

- **Gamma Detectors : NaI(Tl) and GM**
- Sensitivity per detector (Cs-137)
 - **2I** : > 23 cps per nSv/h
 - **4I** : > 37 cps per nSv/h
- Dose rate : 0,001 μ Sv/h to 9 999 μ Sv/h
- Typical resolution 7,5 %
- Spectra : 1024 channels, from 25 keV to 3 MeV
- Identification up to 4 mixed isotopes (on top of the background noise) with confidence level and quantity per nuclide
- Libraries of more than 75 nuclides
- Norms of reference : ANSI N42.43, CEI 62438, IAEA NSS1, IAEA TECDOC 1363

Speed = 64 km/h	Minimum source activity (MBq)		
	Ba-133	Cs-137	Co-60
1* 2L, 2s, 100 m	4670	1760	1170
4* 4L, 5s, 100 m	770	330	340

Minimum detectable source activity **with instant identification**

- **Neutron Detectors : BZnS**
- Sensitivity per detector (Cf-252)
 - 89 cps / (N/s/cm²)
- Dynamic detection (Cf-252) et 3 m and 2,2 m/s
 - 1 detector: 60 000 N/s
 - 4 detectors: 20 000 N/s
- **Detection Cases :**
- 1 detector case :
 - 84 cm x 24 cm x 24 cm
 - 18 kg (2I), 24 kg (4 I)
- 2 Gamma or 1 Gamma + 1 Neutron detectors case :
 - 90 cm x 42 cm x 33 cm,
 - 35 kg (2 x 2I), 49 kg (2 x 4I)
 - 50 kg (2I + Ne), 56 kg (4 I + Ne)
- 4 detectors all-terrain roof box :
 - 195 cm x 130 cm x 50 cm,
 - < 120 kg (4 x 2I)
- **Characteristics :**
- Operating temperature :
 - -20 °C to +50 °C, protection against thermal shocks
- IP 65 case
- Typical autonomy: 8 hours
- Can use vehicle's DC power

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